NPS Management Plan updates and progress of select watershed based plans.

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Management plan updates

The most recent version of West Virginia's NPSMP was approved in the fall of FFY 2019. We are now a little less than halfway through the objectives and load reduction goals that were established. This section summarizes some important progress thus far.

Summaries of WVNPSMP long-term narrative objectives	Progress/updates Ahead / On track / Behind
Watershed management • Conduct restoration activities and BMP implementation in priority watersheds with the goal of achieving load reductions that will meet their designated uses by 2025. **Table 3** provides load reduction projections for the major categories of NPS pollutants. • Support and encourage the protection of healthy watersheds and work with local stakeholders to educate their communities on their importance. This includes waters identified as high quality and outstanding national resources, as well as those that remain high quality but may be threatened by NPS pollutants.	Watershed project work continues in all priority basins. The reduction of pathogens and AMD related impairments continue to be most of the efforts. Recently the Piney Creek WBP has gained momentum due to a renewed effort and funding from the WPP. This plan focuses on restoration from urban influences. The BCs and partner outreach continues to be a significant factor in moving projects forward. Note: COVID has slowed progress on multiple projects.
Agriculture • Targeting statewide opportunities and priority watersheds, promote the conservation of cropland, pastureland and other land within the agriculture community through technical assistance, BMP implementation, conservation planning, nutrient management, monitoring and education. • Manage pesticides to protect surface and groundwater.	All watershed projects in agricultural areas target the reduction of pathogens, sediment, and nutrients. WVCA specialist are the local project managers, and all efforts are moving forward with minimal exceptions. WVCA's AgEP is responsible for most of our nutrient reductions.
Urban stormwater/developed lands • Improve and protect West Virginia's soil and water resources by reducing the amount of erosion from earthwork sites through education and technical assistance. • Provide education and technical assistance on stormwater BMPs.	Recent successful activities in the Chesapeake Bay focusing on GI, has spurred projects in other parts of the state. We are currently moving ahead on multiple phases that include training, education, planning and future implementation.
Resource extraction • If funding allows, the NPS Program will coordinate to the extent possible with WVDEP's OAMLR, OSR, OO&G and WVDOF on future project opportunities in watersheds impaired by resource extraction activities.	AMD restoration projects are a significant portion of our efforts. These continue to have significant impacts and recent involvement from WVDEPs mining programs have enhancement efforts
Chesapeake Bay Program • WV is a headwater state for the Chesapeake Bay watershed and the NPS Program will support the goals of the CB Agreement by serving on committees, participating in regular meetings and calls and providing input to the future development of the Bay TMDL and models. The NPS Program will also work on specific objectives that support the general goals of the CB Program.	The Chesapeake Bay Program provides a significant opportunity for that seven county region of the state. Progress has been steady, and goals are on track in most areas. More details were provided earlier in this report.

WVNPSMP is available *Here*.

Table 3. WVNPSMP load reduction goals

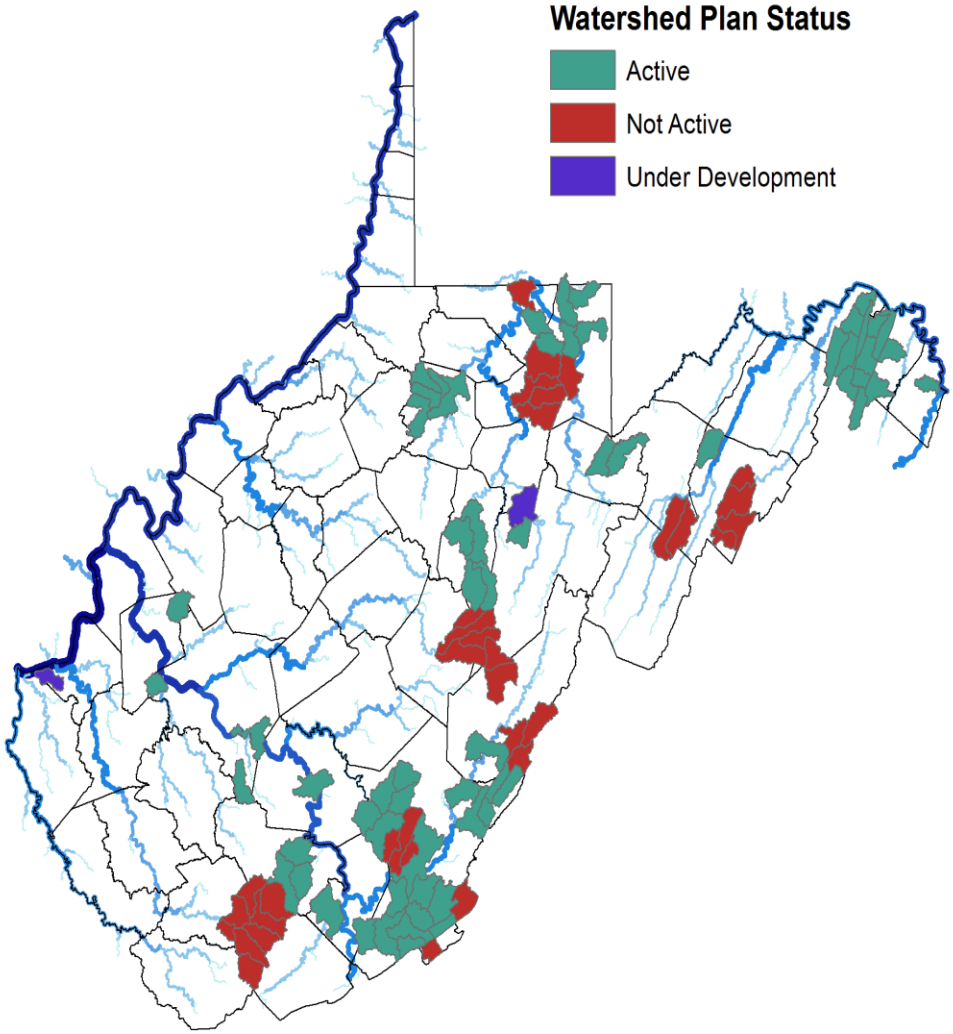
Goals	350	180,000	400,000	300,000	20,000	2.00E+15
Year	Acidity	Total Metals	Nitrogen	Phosphorus	Sediment	Pathogens
2019	WV NPS Management Plan approved in the fall of 2019					
2020	47	14,921	292,151	276,030	53	2.58E+13
2021	73	23,048	620	448	56	1.07E+13
Totals	120	37,969	292,771	276,478	109	3.65E+13

Note: There are load reductions that occurred in 2019 following the approval of the WVNPSMP. These have not yet been accounted for.

Watershed plan highlights

No new WBPs were developed in 2021; however, there are several revisions occurring and we anticipate two WBPs in 2022-23. Two active WBPs are highlighted in this section.

Figure 5. West Virginia watershed based plans map.

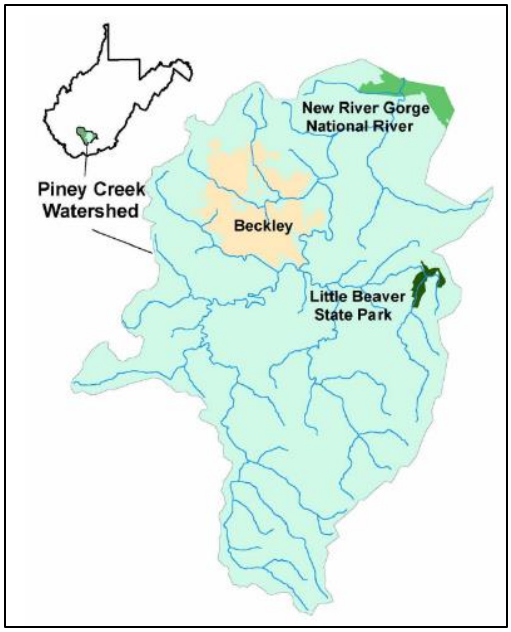


There are 42 EPA approved WBPs and two WPPs in the state. Roughly 20% of those are inactive.

Appendix 5 provides a list of all West Virginia WBPs.

HUCs: 050500040101; 050500040102; 050500040103
Organizations: PCWA; Beckley BSB
Contacts: Jim Fedders, PCWA; Jennifer Liddle, WVDEP; Jeremiah Johnson, BSB

Piney Creek watershed plan



Watershed description

Piney Creek is in the northwestern portion of the New River watershed in Raleigh County, West Virginia. It drains approximately 136 square miles. The Piney Creek watershed consists of three HUC12 drainages: Outlet Piney Creek; Headwaters Piney Creek; and Beaver Creek. The towns of Beckley, Crab Orchard, Sophia, Mabscott, and portions of Coal City are within the watershed boundary as well as Little Beaver State Park and a portion of the New River Gorge National River. The watershed is mostly forested (68.4 percent of the watershed) with significant urban/residential (15.2 percent) and grassland (12.7 percent) areas.

Goals

The EPA approved the WBP in 2012. The WBP provides a framework for achieving the goals of protecting and restoring the watershed. The plan recognized fecal coliform, iron, and sediment as the most widespread impairments. Recommended management measures included: public outreach and education; GI design projects such as rain gardens; septic system repair; public sewer line extensions; limited AMD remediation; and constructed wetlands.

Partnerships/funding

PCWA and WVDEP have partnered with a variety of groups throughout the implementation of the WPP, including: the City of Beckley, BSB, Raleigh County BOE, WVU Tech; NRCWA; BAF; USDA-NRCS, WVCA; SCD; YMCA of Southern West Virginia; Raleigh County SWA; Mountain RC&D; local private landowners; and community groups. Funding dedicated to the WBP thus far is provided in Table 4.

Project highlights

Since the WBP approval, six §319 watershed projects have been completed or are in progress. The first was a barren area above the YMCA soccer fields in Beckley was contributing sediment to Piney Creek. The area was graded and revegetated. Before (1-2) and after photos (3) are shown below.

1

2

3

HUCs: 050500040101; 050500040102; 050500040103
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1

1A

2

2A

Another barren area along New River Drive in Beckley was contributing sediment to Little Whitestick Creek. This site was graded and revegetated in 2021. A rain garden was established to detain stormwater runoff from the front parking lots of the Raleigh County Convention Center. Some work was completed with assistance from a local boy scout troop. (Photos: 1-1A)

An aging pond that contributed high levels of fecal bacteria to Cranberry Creek was converted to a wetland with assistance and cooperation from the local school board. (Photos: 2-2A)

Other activities include establishment of a monthly stream monitoring program at 21 locations in the watershed in conjunction with WVU Tech and the BSB. PCWA also coordinates local volunteer groups for stream and highway litter removal. PCWA conducts educational events with school and scout groups and coordinates an annual Earth Day celebration. PCWA has also undertaken locally funded projects to renovate wetlands at the Shady Spring Public Library and are working with the BAF to install a rain garden adjacent to their new parking lot.

Load reductions

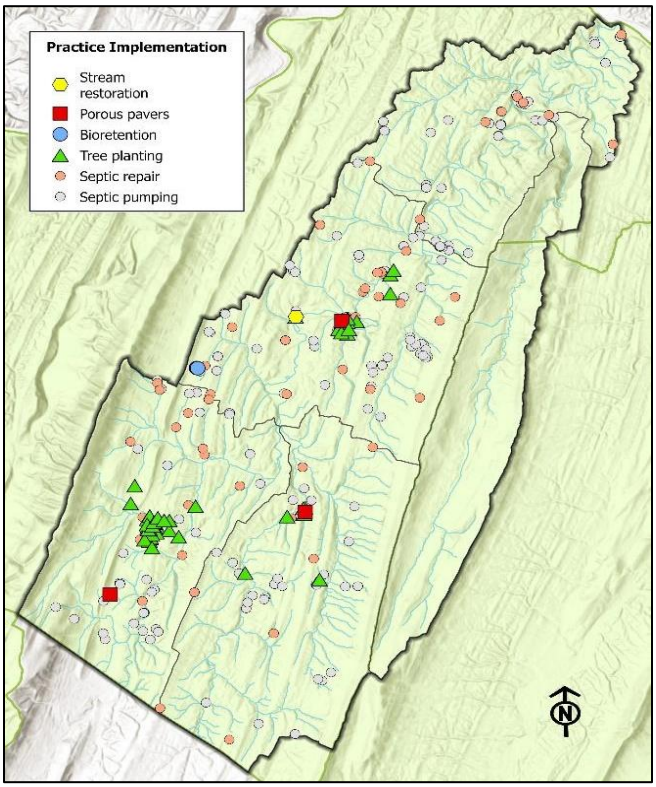
Thus far the focus of most of the projects have been to target sediment and iron loads, which is the major focus of the WBP. Nutrients are targeted to a limited extent, and future reductions will continue to focus on metals, sediment, and fecal coliform. Metals have been reduced by 46 lbs/yr, Sediment by 2.6 tons/yr and nutrients by 3.7 lbs/yr. Only a small percentage (< 10%) of the overall loads have been reduced thus far. Note: Reductions for 50% of the active projects have not yet been determined.

Table 4. Piney Creek WBP funding

319 Projects	§319 funds	Match	Projects/other	State funds	Match
YMCA barren lands	$20,145	$13,800	WPP (years 1-2)	$60,000	NA
Piney Green-infrastructure	$54,291	$36,195	WPP (years 3-4)	$52,500	NA
New River Drive	$32,500	$20,240	WPP (years 5-7)	$67,500	NA
Woodrow Wilson	$60,000	$40,000	AGO monitoring	$7,000	$10,000
Crescent Elementary	$90,000	$59,000	AGO data loggers	$8,034	$5,500
Convention Center	$97,132	$64,750	AGO SWS planning	$6,000	$4,000
Column totals	$354,068	$233,985		$201,034	$19,500
Overall Totals (all funds)	$555,102	$253,485	Note: AGO projects are 319 funds.		

HUC12s: 020700040201; 020700040202; 020700040203; 020700040204; 020700040205
Organizations: SCWA; WVCA
Contacts: Kristen Bisom, WVCA; Alana Hartman, WVDEP; Chuck Marsh, SCWA

Sleepy Creek watershed plan



Watershed description

Sleepy Creek originates in Frederick County, VA, and flows 42 miles northward through Morgan County, WV, until it reaches the Potomac River. Approximately 87% of the total watershed area of 145 square miles is contained in WV. Over 77% of WV's portion of the watershed is forested with the remainder consisting mostly of agricultural and residential land cover. The watershed contains many important species that rely on aquatic habitat, such as the imperiled wood turtle and the federally endangered plant, *Harperella*.

Goals

The mainstem of Sleepy Creek and one of its tributaries, Indian Run, were listed as impaired for fecal coliform bacteria in the 2007 TMDL developed for the streams. The EPA approved a WBP for Sleepy Creek in 2008, which prescribes actions to be taken within the watershed to reduce fecal coliform bacteria loads originating from failing home septic systems and runoff from agricultural, urban, and residential areas. Since the Sleepy Creek watershed falls within the CB watershed, CB funds have also been utilized to target sediment, phosphorus, and nitrogen pollution.

Partnerships/funding

The WVCA and WVDEP have partnered with various entities to implement the WBP. The local volunteer group SCWA has been key to connecting with local landowners and identifying project opportunities. CI analyzed fecal coliform bacteria levels throughout the watershed since 2010. The WVDF, Morgan CHD, and EPCD have helped significantly with project implementation. Funding for practices has come from five §319 watershed projects (one ongoing), three CB grants (one ongoing), and match in the form of state and local funds as well as in-kind contributions.

Riparian buffer planting along the banks of Sleepy Creek (2019).

HUC12s: 020700040201; 020700040202; 020700040203; 020700040204; 020700040205
Organizations: SCWA; WVCA
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The total amount spent or allocated from current grants on WBP implementation is $1,817,372 (Table 5). Additionally, WVCA's AgEP and USDA Farm Bill programs are applied throughout the watershed.

Project highlights

Porous paver installation ~¼ mile uphill from Sleepy Creek (2015).

Since 2008, project implementation has included repairing failing septic systems, septic system pumping, riparian and urban tree plantings, porous pavers, bioretention, and a stream restoration . Additionally, education and outreach efforts such as a pet waste campaign and a fecal coliform monitoring website have been completed. Project implementation was so successful in Indian Run that it was delisted in 2012 due to reductions in fecal coliform bacteria loads. Significant reductions in sediment, nitrogen, and phosphorus have also been achieved in the watershed. The Sleepy Creek WBP is currently undergoing revisions to extend the project implementation timeline, which will include additional septic pumping and repairs, tree plantings, and stormwater BMPs.

Table 5. Sleepy Creek project funding 2008 – 2021

Grant awards	Federal funds	Match	Total
319 Phase I	$292,550	$192,091	$484,641
319 Phase II	$70,200	$43,000	$113,200
319 Phase III	$74,600	$52,948	$127,548
Chesapeake Bay Phase IV	$93,130	$95080	$188,210
319 Phase V	$21,000	$17,000	$38,000
Chesapeake Bay stream restoration	$478,135	$51,008	$529,143
319 Phase VI	$92,130	$64,500	$156,630
Chesapeake Bay Phase VII	$90,000	$90,000	$180,000
Total	$1,211,745	$605,627	$1,817,372

Table 6. Sleepy Creek BMPs 2008-2021

BMPs	#	Units
Septic system repair	68	IU
Septic system pumping	209	IU
Riparian buffers	12.7	AC
Streambank stabilization	612	FT
Urban tree planting	16.4	AC
Porous pavers	0.2	AC
Bioretension	7.4	AC

Table 7. Pollutant reductions 2008-2021

Pollutant	Reduction	Units
Pathogens (Coliform)	1.68E+15	CFU
Sediment	1,389	Tons/yr
Nitrogen	10,873	Lbs/yr
Phosphorus	16,057	Lbs/yr
WBP (pathogen) goal	5.31E+15	CFU
WBP reduction achieved for (pathogens)	36.7	Percent